



Lesson Plans

This unit introduces children to the history of environmental protection in the U.S. Beginning with three types of environment -- mountain, grass plain and forest -- the lessons explore some of the natural resources found in these environments and the processes, both historic and modern, used to extract those resources. The students next learn environments are damaged by natural resource extraction and factory pollution. The unit concludes with a lesson that environmental destruction can be reduced. Throughout the unit, historic figures illustrate how individuals can take positive action for the earth, and encourage the government to protect environments.

Most primary sources for this unit are visual, making them accessible for students across the spectrum of reading ability. The written documents and trade books may be read and explored together as a class, so that interaction with them is not limited to those students capable of reading independently. In order to meet students' individual needs, however, you may also wish to occasionally breakout your classroom into small groups for reading or other creative activities.

There is a wealth of wonderful children's books available on environmental themes. Please explore and use those titles you love best. There are many possible substitutions or additions to the readings chosen for this unit.

Two videos produced by Iowa Public Television, in collaboration with Bringing History Home, introduce children to historic and current processes for gathering natural resources, and to historic superheroes for the environment. Directions for ordering these resources are found in the "Contacts" view of the BHH website.

Activity 1: Mapping the American Landscape

Content Goals:

- ❖ Students learn there are various ecosystems or landscapes across the U.S., including forest, mountain, plain, desert, swamp, ocean.
- ❖ Students are introduced to relief maps.

Process Goals:

- ❖ Students learn to create a relief map based on photos they have examined.

Centerpiece:

- ❖ Photos of mountains, plains, forests. PBS Video – **Introduction to North American Biomes.**



Content:

- ❖ General locations of three natural environments in the U.S.

Process:

- ❖ Class views video. This may be done on various days, as the video consists of 6 ten-minute sections.
- ❖ Teacher-led discussion to reinforce the video. Students examine photos that illustrate various environments. The discussion should include types of landform such as mountain, grassland plain, forest, desert, swamp, ocean, etc.
- ❖ The class examines a plain U.S. map.
 - Teacher asks if this map shows us where various landforms exist.
 - Teacher describes a Relief Map and environmental maps – maps illustrated with sculpted raised areas and/or drawings to show mountains, forests, plains, deserts, or raised areas to demonstrate mountains, valleys, etc.
- ❖ Class builds a simple relief map by placing appropriate photos on a U.S. map in the Great Plains region and the Southern croplands/grasslands; the Rocky and Appalachian mountain regions; and in the forest regions along the eastern seaboards, the Great Lakes regions, and the Pacific NW. Students should be reminded that these areas are generalizations. For example, forests cover the Appalachians and are dense in many parts of the Rockies and Sierras. In the Deep South, forests and croplands co-exist. And the Great Plains are home to many wetlands. Children may also be exposed to the concept that environments may be drastically altered for farming; in the east, vast forests have been cut and burned and replaced with farmland. In the Midwest both forest and wetlands are removed for farming.

Product:

- ❖ The illustrated map, showing various large-scale natural geographic features of the U.S.

Resources:

- ❖ Large, laminated map of the U.S.
- ❖ Photos of various natural environments –or
- ❖ Art materials to create the map land form sculptures.



Activity 2: Where Do These Things Come From?

Content Goals:

- ❖ Everyday objects are made from ingredients we call natural resources or raw materials.
- ❖ Raw materials are found in certain places in the natural world.

Process Goals:

- ❖ Students are introduced to critical thinking involved in looking for the processes and ingredients from which objects are made.
- ❖ Reading maps, students locate where certain natural resources are found.

Centerpiece:

- ❖ Objects from daily life (Examples: Popsicle sticks (for a treat, children might eat the Popsicles first), stapler, corn muffin mix...any objects that are made of 1) wood 2) metal 3) food products.

Process:

- ❖ Starting with a baked treat, the teacher asks students how it is made, i.e., what are the ingredients, how are they turned into a cookie, brownies, etc. This establishes the concepts of *raw ingredients* and *finished products* for the children.
- ❖ The teacher next turns to the daily life objects, and asks the following questions about each:
 - What is this?
 - What is it made of? (metal – or steel, copper, aluminum, etc; wood; corn – flour or sugar may be alternatively offered, as may a variety of answers for the other objects. Creative thinking about this is important – please don't discount answers that don't lead directly to those we may ultimately seek.)
 - Where do you think (wood, metal, food) comes from? (Rocks, corn plants, trees, etc.)
 - On our map we made yesterday, where would you find this substance? {In the mountains (gold or silver or copper or coal); in croplands (corn, wheat); in forests (wood products).}
- ❖ Place the objects on the map where they might originate, i.e. a Popsicle stick in the Minnesota forest, a corn plant in Iowa fields, a copper teakettle in the mountains of Montana.



Products:

- ❖ The objects placed on the map.

Resources:

- ❖ Objects for observation
- ❖ U.S. relief map

Activity 3: Gathering Natural Resources

Content Goals:

- ❖ Students learn farm, logging and mining methods of the past.

Process Goals:

- ❖ Students watch a video, and discuss what they have seen.
- ❖ Students illustrate maps.

Centerpiece:

- ❖ IPTV video on logging and farming.

Content:

- ❖ How we farmed, logged and mined in the past, (long ago, 100 years ago).

Process:

- ❖ Introduce the video by talking about “what is history”?
- ❖ We are studying the history, or story, of how we gathered natural resources long ago and how we gather them now.
- ❖ Show the video in clips. Pause the tape after each segment to discuss what the children see. Sample questions for the logging segments.
 - How did people cut down trees long ago?
 - How did people pull trees out of the woods long ago?
 - What tools do we see on the video?
 - How do people cut down trees today?
 - How do we take trees out of the woods today?
 - What tools do we see on the video?



Product:

- ❖ The children draw small pictures for mining, logging and farming and place them on the relief map in areas where these activities occur. (Farming – on the plains, Logging in the forest areas, Mining in the mountains.)

Resources:

- ❖ IPTV Video

Activity 4: Timeline of Farming

Content Goals:

- ❖ Students learn farming methods change over time and are not the same now as they were long ago.
- ❖ Students learn inventions have made it possible for one farmer to do as much work now as it took many men to do long ago.

Process Goals:

- ❖ Students construct a comparative chart as a class.
- ❖ Students add to a timeline as a class.

Centerpiece:

- ❖ Farming photographs

Content:

- ❖ Chronology of farm methods

Process:

- ❖ The class constructs a comparative farming chart by observing long ago and recent farming photographs. Class pastes the photos on a 2-column chart with headings for Long Ago and Today.
- ❖ The class may record the photograph dates and paste the farm photos on a timeline. Ideally, the class will add to its timeline throughout the year.

Product:

- ❖ Change-over-time chart
- ❖ Timeline



Resources:

- ❖ Butcher paper or poster board for chart
- ❖ Photos of farming

Activity 5: Where We Log, Farm and Mine. What Happens to the Earth?

Content Goals:

- ❖ Students learn when we gather natural resources; we often harm the environment in which these resources are found.

Process Goals:

- ❖ Students make puppets based on what they have learned in books and photos.

Centerpiece:

- ❖ Video – Dr. Seuss' **The Lorax**. Photographs of farm erosion, strip-mining, and clear-cutting. Books: **Everglades** (George & Minor, 1997) and **V is for Vanishing** (Mullins, 1993).

Content:

- ❖ Wildlife habitat loss, Topsoil loss, and Water pollution that result from gathering natural resources.

Process:

- ❖ Class views and discusses **The Lorax**.
- ❖ Teacher reads **Everglades** and **V is for Vanishing** to the class.
- ❖ Class studies photos together. The students will use the photos to build a collage in Activity 7.
- ❖ **Optional Activity:** Children make paper sack hand puppets of an endangered species.
 - With their puppets speaking, students describe to the class the animal they are and where they live.

Product:

- ❖ (Optional) Hand Puppets.



Resources:

- ❖ Lunch-size paper bags (optional)
- ❖ Markers and/or crayons (optional)
- ❖ **Everglades** (by George, J.C., & Minor, W., Reprint edition 1997. Scott Foresman)
- ❖ **V is for Vanishing** (Mullins, P., 1993. Margaret Hamilton)
- ❖ Dr. Seuss' **The Lorax**.
- ❖ Photos

Activity 6: Our Public Lands

Content Goals:

- ❖ Students learn that long ago, concerned people sought ways to protect U.S. environments.
- ❖ Students learn those citizens created ways to both preserve and wisely use public lands.
- ❖ Students learn wild country can be a natural resource in itself.

Centerpieces:

- ❖ Photos and readings on Teddy Roosevelt, Gifford Pinchot, and John Muir. Book, **Common Ground** (Bang, 1997).

Content:

- ❖ How the United States began to protect the earth more than 100 years ago.

Process:

- ❖ Teacher reads **Common Ground** to the class. Please see the unit's teacher adaptations for an excellent activity based on this reading.
- ❖ Discussion of three environmentalists who lived long ago.
- ❖ Photos of Muir, Roosevelt and Pinchot may be added to the class timeline between 1880 and 1910.
 - John Muir's idea for protecting habitat and the forests was to create national parks and set aside wilderness areas where raw materials could not be harvested. Explore the idea that wilderness can be viewed as a natural resource in its own right. (People visit these areas to absorb the peace and beauty, animals and plant systems may live relatively

undisturbed, etc.) Contrast John Muir's values with George Marsh. (Please see unit resources for background and discussion questions on Muir and Marsh.)

- How can we enjoy forests and lakes?
- The mountains?
- Prairies?
- (Hiking, camping, fishing, swimming...)
- Gifford Pinchot's idea for protecting the forests was to continue logging, but create a forest service. The Forest Service tells peoples how many trees they may cut down on public lands. Public lands are owned by everyone in the U.S, not by an individual.
- Teddy Roosevelt was president in the early 1900's. He listened to both men and established several national parks (Muir's preservation ethic) and the forest service (Pinchot's conservation ethic).

Resources:

- ❖ Common Ground (Molly Bang, 1997. The Blue Sky Press.)
- ❖ Background information on Marsh and Muir
- ❖ Photos of Muir, Pinchot and Roosevelt

Activity 7: Problems Caused by Manufacturing

Content Goals:

- ❖ Students learn when we turn natural resources into products; the environment is often polluted in the process.
- ❖ Students learn when people care enough and take action, they can clean-up pollution and make factories run cleaner.

Process Goals:

- ❖ Students begin making collages to tell about environmental problems and solutions. This activity is a step toward synthesizing various historical resources to tell a story.

Centerpiece:

- ❖ Photos of Pollution. Book, [A River Ran Wild](#).

Content:

- ❖ Pollution as a by-product of manufacturing.



Process:

- ❖ Teacher reads **A River Ran Wild**.
- ❖ Question for students: How is this kind of pollution different from the kinds of problems we've been studying? (Factories were the source.)
- ❖ Class studies photos of pollution.
- ❖ Working in groups, students begin a collage.
 - Each group has its own poster board.
 - Students glue photos of pollution and environmental damage in a center circle on the board.

Product:

- ❖ Pollution Collage – incomplete posters

Resources:

- ❖ Poster board
- ❖ Photos of polluted sites
- ❖ **A River Ran Wild** (Cherry, L., 1992. Gulliver Books.)

Activity 8: Seeking Solutions to the Problems

Content Goals:

- ❖ Students learn that more than fifty years ago a woman named Rachel Carson cared about the earth and was worried about water pollution. She wrote a book to tell people about the pollution.
- ❖ Students are introduced to the concept that Congress makes our national laws.
- ❖ Students learn that after people asked the government to take action, Congress passed laws against polluting our air and water.

Process Goals:

- ❖ Students apply what they have learned in the unit by planting trees and/or cleaning-up around their school.

Centerpiece:

- ❖ Excerpts from the Clean Water and Air Acts. Excerpts on Rachel Carson from selected websites -- please see suggested site list in the unit resources. (A



children's book on Rachel Carson may also be included here; we recommend **Rachel: The Story of Rachel Carson**, but there are various other titles also worthy of your class time.)

Content:

- ❖ Action that people and the government have taken to clean-up pollution.

Process:

- ❖ Teacher shares profile of Rachel Carson from website biographical information.
- ❖ Discussion -- What is the U.S. Congress?
 - Teacher asks, “What is a law?” “What is the U.S. Congress?”
 - Discussion about congress – a group of people elected from all the states to make our nation’s laws. Congressmen and women gather in a city named Washington D.C. There they make laws everyone is supposed to obey. These laws are also called “acts” (another word for law). Congress makes some laws that restrict pollution.
- ❖ Teacher reads from or describes the Clean Water and Air Acts.
- ❖ Government alone can’t take care of the earth.
 - Individuals must care and do their part.
 - The children pick-up trash at the school, plant trees on the school grounds, organize a classroom recycle center (if they don’t already have one), or ?
 - Teacher photographs students in these activities.
- ❖ Students complete their environmental collages begun in Activity 7. Students paste solution photos and documents around the outside of pollution photos. The solution photos may include photos of historic environmental advocates and clean-up efforts, titles of environmental protection laws, and photos of students’ own school clean up. When complete, the collages display photos of pollution and environmental damage, encircled by photos of clean-up and environmental advocacy. The collages are posted in the school hallways, if possible.

Product:

- ❖ Completed Collages

Resources:

- ❖ Rachel Carson Websites
- ❖ **Rachel: The Story of Rachel Carson** (Ehrlich, A. & Minor, W., 2003. Silver Whistle Press.)



- ❖ Clean Water and Air Acts excerpts.

Activity 9: Super Heroes for the Environment

Content Goals:

- ❖ Students review the origins of pollution and environmental damage.
- ❖ Students review the actions government has taken to protect the earth from natural resource harvest damage and from factory pollution.

Process Goals:

- ❖ Students complete their collages.
- ❖ Students synthesize what they have learned into a superhero who works on a specific environmental problem.

Content:

- ❖ Conclusion and Review

Process:

- ❖ Review Discussion
 - What are some ways we damage the earth?
 - What are some ways we can protect the earth?
- ❖ Students design environmentalist superheroes: each student draws a picture of him or herself as a superhero. Students then write a story about their hero based on the following “biographical” information. (Please see the teacher adaptation based on this activity.)
 - What is your name(s) as a superhero?
 - What powers do you have?
 - What environmental problem do you fix?
 - Students introduce themselves as their superhero persona to the class.

Product:

- ❖ Superhero Stories